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EXAMINER
SANDERS, AARON J

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>18 November 2008</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>13-15 and 17-24</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>13-15 and 17-24</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)

has been timely paid, the finality of the previous Office action has been withdrawn pursuant to

37 CFR 1.114. Applicant's submission filed on 18 November 2008 has been entered.

Response to Amendment

The amendment filed 23 October 2008 has been entered. Claims 13-15 and 17-24 are

pending. Claims 13, 15, 17-18, and 20-23 are currently amended. Claims 1-12 and 16 are

cancelled. No claims are new.

Specification

The amendment to the abstract filed 23 October 2008 has been entered.

Claim Objections

As per claim 13, it is unclear if the "recording" in the phrase "adding, deleting, or

modifying a recording" is the same type of "recording" as the "digital recording" in the phrase

"creating at least one digital recording." The Examiner assumes they are different types of

"recordings." Specifically, it appears that a "recording" is a file or data block, while a "digital

recording" is an entry in the "historical database." This is not entirely clear, however, because both are called "recordings."

As per claim 13, the phrase "the original request <u>and to</u> the target state" in the "reconstructing" step is incorrect.

As per claims 13, 15, 19-20, and 23, the "main database" should be the "main digital database."

As per claim 15, the "digital database" should be the "main digital database."

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 13-15 and 17-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Klein et al., U.S. 6,631,374 ("Klein").

13. Klein teaches "*A process for constructing an organized digital database in a traceable form, wherein a computer-readable medium comprises computer-executable instructions for performing the process, the process comprising,*" see col. 1, lines 7-10, "a system and method for providing fine-grained temporal database access in a consistent read environment."

Klein teaches "*modifying a main digital database by adding, deleting, or modifying a recording of the main database, comprising,*" see col. 2, lines 38-50, "a transaction makes a change to a relative database block (or simply, 'data block')," where the claimed "modifying" is the referenced "transaction" and the claimed "recording" is the referenced "data block."

Klein teaches "*creating at least one digital recording, wherein the at least one digital recording comprises at least,*" see Fig. 4 and col. 6, lines 51-67, "FIG. 4 is a data structure diagram showing the structure of a transaction table entry 70 for use in the database 23 of FIG. 2," where the claimed "digital recording" is the referenced "transaction table entry 70."

Klein teaches "*(i) unique digital identifiers of concerned recordings and attributes of the main database,*" see Fig. 4 and col. 6, lines 51-67, "The relative database block 71 refers to the database block within the data tables 36 to which the transaction table entry 70 relates," where the claimed "unique digital identifier" is the referenced "relative database block 71" and the claimed "concerned recordings and attributes" are the referenced "database block[s] within the data tables 36."

Klein teaches "*(ii) a unique digital identifier of a state of the main database corresponding to the modification of the main database,*" see Fig. 2 and col. 6, lines 17-23, "The consistent read mechanism iterates through the transaction table entries to provide a selective temporal view of row data as of a given... system change number," where the claimed "unique digital identifier" is the referenced "system change number" and the claimed "state... corresponding to the modification" is the referenced "temporal view."

Klein teaches "*and (iii) elementary values of attributes assigned via elementary operations without proceeding to store non-modified attributes or recordings,*" see Fig. 4 and

col. 6, lines 51-67, "The actual data 75 details the actual data values by address and content,"

where the claimed "elementary values" are the referenced "actual data 75."

Klein teaches "*addition of the at least one digital recording in an internal historical*

database composed of at least one internal historical table," see Fig. 2 and col. 6, lines 8-16,

"The rollback mechanism 32 journals transactions in a transaction table 34," where the claimed

"historical database" is the referenced group of "rollback segments" 35 and the claimed

"historical table" is the referenced "transaction table."

Klein teaches "*and reading the main database, wherein reading the main database*

comprises," see Fig. 10 and col. 8, lines 30-43, "FIG. 10 is a flow diagram showing a routine for

performing a consistent read operation 160."

Klein teaches "*receiving an original request associated with the unique digital identifier*

of a target state," see Fig. 10 and col. 8, lines 30-43, "The purpose of this routine is to access the

retained data values stored in the transaction table entries 35 (shown in FIG. 2) associated with

the system change number for the database 23 as of the requested query time," where the

claimed "original request" is the referenced "access" and the claimed "unique digital identifier of

a target state" is the referenced "system change number."

Klein teaches "*transforming the original request to construct a modified request for*

addressing the internal historical database comprising criteria of the original request and the

unique digital identifier of the target state," see col. 8, lines 9-17, "A temporal access provides a

logical view of retrieved data values as a 'snapshot' taken as of the requested access time. Thus,

the environment of the snapshot must first be retrieved (block 141) from the transaction table 34

(shown in FIG. 2). The environment includes the transaction identifier xid, relative user block

address rdba, and system change number scn as of the requested query time," where the claimed

"modified request" is the referenced "temporal access," the claimed "criteria of the original

request" is the referenced "relative user block address" and the claimed "target state" is the

referenced "system change number."

Klein teaches "*and reconstructing the recording or recordings corresponding to the*

criteria of the original request and to the target state, wherein reconstructing comprises finding

elementary values contained in the recordings of the internal historical database and

corresponding to the criteria of the original request to reduce requirements of storage capacity

and processing times," see Fig. 10 and col. 8, lines 30-43, "First, the relative database block is

retrieved (block 161) from the persistent storage 22. Next, each interested transaction entry (ITE)

51 (shown in FIG. 3) is iteratively processed (blocks 162-169) to logically reconstruct the

database 23 as of the requested query time."

Klein teaches "*wherein the main database comprises at least one table with organized*

development links between the unique digital identifiers of successive and alternative states of

the main database," see Fig. 2 and col. 6, lines 8-16, "The rollback mechanism 32 journals

transactions in a transaction table 34… The actual data value changes are stored as linked

transaction table entries," where the claimed "main database" is the referenced database 23 and

the claimed "development links" are the referenced links between "transaction table entries."

14. Klein teaches "*The process according to claim 13, wherein the recordings of the*

internal historical database also contain references to other recordings of the internal historical

database to specify connections of dependence of source-destination type constituting a stream

of interferences between data versions," see col. 3, lines 18-41, "A logical select operation is

executed on the database for row data values as of a query time occurring prior to the commit

time of at least one committed transaction. The ordered row data values stored in the undo

entries are retrieved by referencing the transaction table entries at each address included in the

interested transaction entry with the transaction identifier for the at least one committed

transaction."

15. Klein teaches "*The process according to claim 13, wherein modifying the main

database comprises a logic operation, and addition in the internal historical database

comprises: recording the state of the digital database corresponding to the logic operation,

where there are as many recordings as parameters of the logic operation," see col. 3, lines 18-

41, "A system change number is assigned to the database version upon each committed

transaction" and col. 2, lines 38-50, "Each interested transaction entry references a transaction

table entry storing the changed data values."

Klein teaches "*recording the possible result of the logic operation,*" see col. 5, lines 50-

64, "Identical query results are guaranteed for any given system version number."

Klein teaches "*and specifying connected references to regroup operations from the*

elementary level of modification to a level of the transaction, passing the number of semantic

levels necessary for the applications," see col. 8, lines 9-17, "Thus, the environment of the

snapshot must first be retrieved (block 141) from the transaction table 34," where the claimed

"regrouping" is the referenced "snapshot."

17. Klein teaches "*The process according to claim 13, wherein the table or tables of the*

development links between the states of the main digital database contain(s) recordings

specifying rules of correspondence between the recordings of the internal historical database

and the states of the main database," see col. 3, lines 18-41, "The ordered row data values stored

in the undo entries are retrieved by referencing the transaction table entries at each address

included in the interested transaction entry with the transaction identifier for the at least one

committed transaction."

18. Klein teaches "*The process according to claim 17, wherein reading comprises*

determining the state of the main database by referring to the identifiers and to the tables of

development links between the states of the main digital database," see col. 3, lines 18-41, "The

database is transitioned into successive consistent database versions responsive to each

committed transaction."

19. Klein teaches "*An architecture for database management that employs the process*

according to claim 13, wherein an application querying the main database can specify the state

of the desired main database," see Fig. 1 and col. 3, lines 18-41, "A logical select operation is

executed on the database for row data values as of a query time occurring prior to the commit

time of at least one committed transaction."

20. Klein teaches "*The architecture according to claim 19, wherein the application*

brings about modifications in the entire state of the main digital database and gives rise, in the

instance of an attempt to modify a previous state, to creation of new alternatives of digital

development of the main database, whose data is generated by the same internal historical

database," see col. 3, lines 18-41, "Rollback segments for uncommitted transactions are stored.

Each rollback segment stores a transaction identifier and information pertaining to effecting or

restoring the database changes, including addresses for a undo entries containing row data values

reflecting the database changes."

21. Klein teaches "*The process according to claim 15, wherein one or more dependence links serve as recovery criteria for said operations already carried out,*" see col. 3, lines 18-41, "Rollback segments for uncommitted transactions are stored."

22. Klein teaches "*The process according to claim 15, further comprising integrating or merging updates carried out on various branches into the framework of a new state inheriting these branches,*" see col. 3, lines 18-41, "The database is transitioned into successive consistent database versions responsive to each committed transaction at a journaled commit time."

23. Klein teaches "*The process according to claim 15, further comprising treating cases of the development of the structure of the data of the main database as particular cases of the development of the data of the main database,*" see col. 9, lines 5-17, "Similarly, the transaction table entries could also store record, table, or schema changes. As well, the temporal access operations operate on a single table as of a fixed point in time."

24. Klein teaches "*The process according to claim 15, wherein the internal historical database is explored and queried by applications via a native mode of a DBMS to obtain information and to navigate along versions and streams of dependence in accordance with the querying language in force required by the DBMS,*" see Fig. 2 and col. 5, lines 2-5, "the database engine 21 and database 23 form a relational database management system."

Response to Arguments

As per Applicant's argument that Klein does not teach "a table in the main database that is able to organize the lengths of evolution between the identifiers of the successive and alternative states of the database," the Examiner assumes Applicant is referring to the limitation

"wherein the main database comprises at least one table with organized development links

between the unique digital identifiers of successive and alternative states of the main database."

The Examiner cited Fig. 2 and col. 6, lines 8-16, "The rollback mechanism 32 journals

transactions in a transaction table 34… The actual data value changes are stored as linked

transaction table entries," where the claimed "main database" is the referenced database 23 and

the claimed "development links" are the referenced links between "transaction table entries."

Applicant has not pointed out how the claimed limitation differs from the cited reference.

As per Applicant's argument that Klein does not teach the "reading step the ability to

intercept an original request to rebuild a modified request of addressing the historical database,"

the Examiner assumes Applicant is referring to the limitation "receiving an original request

associated with the unique digital identifier of a target state; transforming the original request to

construct a modified request for addressing the internal historical database comprising criteria of

the original request and the unique digital identifier of the target state."

As per "receiving an original request associated with the unique digital identifier of a

target state," the Examiner cited Fig. 10 and col. 8, lines 30-43, "The purpose of this routine is to

access the retained data values stored in the transaction table entries 35 (shown in FIG. 2)

associated with the system change number for the database 23 as of the requested query time,"

where the claimed "original request" is the referenced "access" and the claimed "unique digital

identifier of a target state" is the referenced "system change number."

As per "transforming the original request to construct a modified request for addressing

the internal historical database comprising criteria of the original request and the unique digital

identifier of the target state," the Examiner cited see col. 8, lines 9-17, "A temporal access

provides a logical view of retrieved data values as a 'snapshot' taken as of the requested access

time. Thus, the environment of the snapshot must first be retrieved (block 141) from the

transaction table 34 (shown in FIG. 2). The environment includes the transaction identifier xid,

relative user block address rdba, and system change number scn as of the requested query time,"

where the claimed "modified request" is the referenced "temporal access," the claimed "criteria

of the original request" is the referenced "relative user block address" and the claimed "target

state" is the referenced "system change number."

The Examiner does not see how the cited "temporal access" is different from the claimed

"modified request." The limitation states that the "modified request... compris[es] criteria of the

original request," which appears to be the same as Applicant's argument that Klein's "temporal

access" comprises "criteria defined in the original request." Further, as stated above, the claimed

"criteria of the original request" is the referenced "relative user block address" and the claimed

"target state" is the referenced "system change number." Thus, Klein teaches all the limitations

of Applicant's claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Aaron Sanders whose telephone number is 571-270-1016. The

examiner can normally be reached on M-F 9:00a-4:00p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Tim Vo can be reached on 571-272-3642. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

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like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tim T. Vo/
Supervisory Patent Examiner, Art Unit 2168

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Examiner, Art Unit 2168
29 January 2009